FUEL OIL TANK FOR MAYOR"S OFFICE

Architect of Record: Swanke Hayden Connell

CHRONOLOGY:

3/9/98- PA reviewed Conceptual design and raised the fuel oil tank issue (Comments 3 and 4) – (Page 2 and 3)

3/19/98- Meeting between PA and the Architect. The Architect clarified the design intent and the code issues.(Page 4)

3/20/98 – Letter from the architect justifying the design-(Page 5 –8)

4/22/98- White paper by QAD (page 9 –13)

4/15/98- Architect submitted Construction documents to PA

4/23/98- PA Risk Management presented the design to NYC Fire Department and obtained their concurrence on the design on 4/27/98 (Page 14)

4/28/98- PA disapproved the design documents due to lack of proper fire protection See Remark and comment 46. (page 15 – 25)

5/19/98- Conditional approval by PA. In subsequent submissions, fire protection issues were addressed in the drawings by the Architect. (Page 26 – 30)

Saroj Bhol
QAD

12/20/01

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Lou Menno, General Manager, World Trade Tenant Services
From: C. John Lin, P.E.
Date: March 9, 1998
Subject: **WTC - ALTERATION APPLICATION W-987134 - MAYOR'S OFFICE - 7 WTC, 1ST FLOOR - MAYOR'S EMERGENCY MANAGEMENT OFFICE**

Reference: Review Request dated 3/3/98

Copy To: A. Fadavi, G. Gaeta, T. O'Connor, J. Napolitano, Job Folder, Chrono Folder

A conceptual review of the material submitted with the referenced request has been made.

There are **five (5) comments** on the attached rider.

Drawings:

REMARKS: This memorandum was transmitted to the Facility via OA on March 9, 1998.

for C. John Lin, P.E.
Acting Manager
Quality Assurance Division

I.D.: W98-7134-000
OMC/al
att.

Reviewers:
O.M. Clemente, Mechanical and Coordinator; J. Kozel, Architectural; A. Rohssler, Electrical; V. Tsin, Structural; D. Luey, Fire Protection.

RIDER

ALTERATION APPLICATION W-987134

ARCHITECTURAL

1. Since the fuel oil tank room has an Occupancy Classification of "A," High Hazard, a four hour fire division is required on all sides (including the horizontal surfaces). See Code Section 234, 27-340, and Table 5-2.

STRUCTURAL

2. Drawing A-1-1. Please investigate the existing structure for its adequacy to support the load of the new fuel oil storage tank.

MECHANICAL

3. Please indicate the size of the tank. Since the tank is located above the lowest floor, and above the existing storage room, only 275 gallons tanks will be permitted as per NYC Building Code Section 27-829(b). Above ground tanks larger than 275 gallons must be located on the lowest floor and comply with provisions of Code Section 27-289(a).

4. Drawing A-1-1. The space shall be ventilated as required by Code Section 27-405, high hazard occupancy.

FIRE PROTECTION

5. Drawing A-1-1. Provide extra hazard sprinkler protection for the tank room, as the space is classified "high hazard," see Comment 1 above.

030998

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ATTENDANCE SHEET
MEETING - MAYOR'S OFFICE OF EMERGENCY MANAGEMENT
TAA 987.134
MARCH 19, 1998 1:30PM

Saroj Bhol	P.A. Quality Assurance	435-8575	
John Picone	P.A. Assistant Property Manager	435-2341	
Jeffrey Gertler	P.A. Project Manager	435-4531	
Chi Chu	Silverstein Properties		
Walter Weems	Silverstein Properties -	219-6569	
Charlie Magee	Silverstein Propeties		
Joe Aliotta	Swanke Hayden Connell Architects	219-6716	FAX 219-0059
Val Lemeshev	Consentini Associates	615-3633	615-3700
Martin Schnieder	Ambassador Construction	922-1020	949-9762
Joe Dominquez	Dept. of Citywide Admin. Services	669-8087	
Charles Rizzo	Charles Rizzo Associates	-695-5980	
Sal Cocolicchio	Charles Rizzo Associates		
RON PISAPIA	PA ENG/QUALITY ASSURANCE	(212) 435-8562	
Otto M. Clemente	— ditto —	(212) 435 8589	
Donny Luey	PA Eng/Fire Protection	212-435-7552	
JOANNE KOZEL	P.A QAD/ARCHITECT	212 435 8618	
~~SAROJ BHOL~~			

SWANKE HAYDEN CONNELL ARCHITECTS

295 Lafayette Street, New York, New York 10012
212 226 9696, Fax 212 219 0059

Rec 3/24/98 (5)

March 20, 1998

THE PORT AUTHORITY OF NY & NJ
QUALITY ASSURANCE DIV.
ENGINEERING DEPT.
MAR 24 1998
RECEIVED
NOTED:
REFERRED TO: Dave Warren
D. Lucy.

Mr. Jeffrey Gertler
Project Manager
Port Authority of New York
1 World Trade Center
New York, New York 10048

Re: Mayor's Office of Emergency Management
7 World Trade Center-23rd Floor
New York, New York
SHCA Project No. 5576A
TAA No. 987134
"Conceptual Review-Submission : Fuel Oil Room"

Dear Mr. Gertler:

We would like to take the opportunity to thank you and the other Port Authority staff members present for taking the time to meet with us on Thursday March 19, 1998. The review of your comments in connection to the above referenced submission was helpful. Per our meeting, the following is the additional information requested to clarify the design intent and code issues related to the fuel oil tank design:

The Section 27-829(a)(3) of the NYC Building Code states "TANK CAPACITY ELEVEL HUNDRED GALLONS OR MORE.-Storage tanks having a capacity of eleven hundred gallons or more may be installed above ground on the lowest floor of the building, provided that all portions of such tanks above the floor are completely enclosed with noncombustible construction having at least a three hour resistance rating. ....."

Per the conceptual drawing A-1- submission, the lowest floor of 7 World Trade Center is the Ground Floor. This building does not have a cellar or basement. The next floor above Ground is the identified as the 3rd Floor. There are no elevator stops or fire stair access doors between the Ground & 3rd Floors making the Ground Floor and this room a double height space (floor-to-floor height of 25'-3"). The 6,000 gallon fuel oil tank shall be located in a room adjacent to the Ground Floor Lobby on Vesey Street which currently houses a televator utilized to maintain the Lobby lighting. The fuel oil tank shall be enclosed with noncombustible construction having at least a three hour resistance rating as required by Code. As submitted, we propose to support the tank above the floor within this room and to build a platform with walls and curbs to retain fuel oil in the event of leakage. We shall conform to all applicable provisions of the NYC Building Code: Subchapter 14, Article 17-Fuel Oil Equipment.

As discussed, we shall confirm the type of fuel oil to be stored and its minimum flashpoint temperature to determine whether the room needs to be classified as Occupancy Group A-High Hazard. We shall conform to the applicable provisions of the Code based upon the occupancy classification determined for the type of fuel oil to be stored. As discussed, Silverstein Properties, Inc. will continue to house the televator in this location. Currently, the televator is a Genie Boom Model No. Z-45-22 which is battery operated and occupies most of this room. We propose that this Genie storage area be classified as Occupancy Group B-2-Storage (low hazard) and we shall provide a fire separation or fire division between uses in the room in accordance to the Code requirements.

[illegible] CONCEPT REVIEW [illegible]

MAR-24 98 12:54 FROM:SHCA LTD TO:94358168 PAGE:02/03

(6)

Mr. Jeffrey Gertler
Port Authority of New York
Mayor's Office of Emergency Management
7 World Trade Center
SHCA Project No. 5576A
TAA No. 987134
March 20, 1998

Again, we thank you for your time and assistance. We look forward to working with you to bring about a successful project for the Mayor's Office of Emergency Management. Should you have any questions or comments, please call.

Sincerely,

SWANKE HAYDEN CONNELL ARCHITECTS

Joseph J. Aliotta

Joseph J. Aliotta 219-6716
Associate Principal

cc: C. Chu-Silverstein Properties
W. Weems-Silverstein Properties
C. Rizzo-Rizzo & Associates

Discussed w/ D. Warren + D. Lucy or 3/26/98

W:\5576A\DEMDOC\LETTERS\PA CONCEPT REVIEW 03-20-98.DOC

(vii) ctions between bracing members and the sides of the tank shall ...gned so that the connections will not fail before the member will fail.

(4) *All tanks except vertical tanks above ground 275 gallons or less capacity.* All storage tanks of 275-gallon capacity or less that are not buried shall have a minimum thickness of shell and head plated of number 10 manufacturer's standard gauge steel plate. Storage tanks of 60-gallon capacity or less shall be similarly constructed but need not be thicker than No. 14 manufacturer's standard gauge.

(5) *Vertical storage tanks over 1,000-gallon capacity located outside of building above ground.*

(i) Vertical tanks located outside of buildings above ground shall be built of steel plates of the quality required for cylindrical tanks.

(ii) The minimum thickness of roof plates shall be ¼-inch. The thickness of shell plates shall be determined in accordance with the following formula:

$$t = \frac{TE}{PRF}$$

Where: t=thickness of shell plate in inches

P=head pressure at bottom of ring under consideration in p.s.i.

R=radius of shell, in inches

F=factor of safety (taken as 5)

T=tensile strength of plate, in p.s.i. as verified by mill test certificate

E=efficiency of vertical joint in pipe under consideration

E. shall in no case be taken greater than 1.00.

Roof plates shall have single lap-riveted or welded water-tight seams, and the roof shall be built to shed water. Bottom plates shall have single lap riveted or welded seams. Shell plate seams shall be designed to develop the full strength of the plate.

[redacted] Inside of building, above ground on the lowest floor.

(i) *Tank Capacity of 550 gallons or less.* Storage tanks having a capacity of 550 gallons or less may be installed above ground on the lowest floor of a building, provided that such tanks are mounted on adequate noncombustible supports, with the tank anchored thereto. No more than 550 gallons of total storage capacity may be installed without protection provided in subparagraph (ii) or (iii) below.

(ii) *Tank capacity more than 500 gallons but less than 1,100 gallo..* Storage tanks having a capacity of more than 550 gallons but less than 1,100 gallons may be installed above ground on the lowest floor of a building, provided that all portions of such tanks above the floor are completely enclosed with noncombustible construction having at least a 2-hour fire resistance rating. Weep holes 1-inch in diameter shall be provided at least every 3 feet along the bottom of the enclosure unless at least 15 inches of clearance, together with access door, is provided between the tank and the enclosure.

[redacted] Storage tanks having a capacity of 1,100 gallons or more may be installed above ground on the lowest floor of a building, provided that all portions of such tanks above the floor are completely enclosed with non-combustible construction having at least a 3-hour resistance rating. At least 15-inch clearance shall be provided over the tanks and on all sides between the tanks and the enclosure. A noncombustible access door, constructed so as to preserve the integrity of the fire resistive enclosure, shall be installed in the enclosure above the point where the capacity of the enclosure below the door sill would be equal to the capacity of the largest tank installed. When the longest inside dimension of the enclosure exceeds 35 feet, access doors shall be installed at intervals not exceeding 12 feet. Columns, pipes, or similar obstructions may project into the required 15 inches of space within the enclosure, provided that access door or doors are so arranged that all portions of the enclosure are accessible for servicing.

(iv) *Maximum tank size.* The capacity of individual storage tanks in no case shall exceed 20,000 gallons.

(2) *Inside of buildings, below ground.*

(i) Storage tanks having a capacity greater than 275 gallons may be buried inside of a building provided that the top of the tank is at least 2 feet below floor level. In lieu of 2 feet of earth over the tank, the tank may be covered by concrete flooring having the same thickness as the basement floor, but not less than 4 inches concrete meeting the requirements of Subchapter 10 of Chapter 1 of Title 27 of the Administrative Code and reinforced with 2-inch by 2-inch mesh of at least No. 20 U. S. Standard Gauge Steel Wire. Tanks shall be placed in firm soil and shall be surrounded by clean sand or well-tamped earth, free from ashes and other corrosive substances, and free from stones that will not pass through a 1-inch mesh. When necessary to prevent floating, tanks shall be securely anchored.

(ii) No tank shall be buried within 3 feet of any foundation wall or footing.

minimum rivet diameter in seams shall be 5/8 in., and rivets shall be spaced no more than 2 1/4 in. center-to-center.

(4) All flat surfaces of rectangular tanks shall be braced by structural members or rods.

(5) When structural members are used, the rivet pitch shall not exceed six inches.

(6) All structural members shall be designed in accordance with the requirements of subchapter ten of this chapter.

(7) Connections between bracing members and the sides of the tank shall be designed so that the connection will not fail before the member will fail.

(d) All tanks except vertical tanks above ground, two hundred seventy-five gallon or less capacity.

(1)* All oil storage tanks of two hundred seventy-five gallon capacity or less that are not buried shall have a minimum thickness of shell and head plates of no. 10 manufacturer's standard gauge steel plate. Storage tanks of sixty gallon capacity or less shall be similarly constructed but need not be thicker than No. 14 manufacturer's standard gauge.

(e) Vertical storage tanks over one thousand gallon capacity located outside of building above ground.

(1) Vertical tanks located outside of buildings above ground shall be built of steel plates of the quality required for cylindrical tanks.

(2) The minimum thickness of shell or bottom plates shall be one quarter of an inch, and the minimum thickness of roof plates one-eighth of an inch. The thickness of shell plates shall be determined in accordance with the following formula:

$$t = \frac{P \times R \times F}{T \times E}$$

where

t = thickness of shell plate in in.
P = head pressure at bottom of ring under consideration in psi.
R = radius of shell, in in.
F = factor of safety (taken as 5).
T = tensile strength of plate, in psi as verified by mill test certificate.
E = efficiency of vertical joint in ring under consideration. E shall in no case be taken greater than 1.00.

(3) Roof plates shall have single lap-riveted or welded watertight seams, and the roof shall be built to shed water. Bottom plates shall have single lap riveted or welded seams. Shell plate seams shall be designed to develop the full strength of the plate.

(f) Storage containers of six gallons or less.

(1) Oil storage containers used with burners or oil burning heaters and having a capacity of six gallons or less used in connection with burners or oil-burning heaters shall be designed so as to withstand a hydrostatic pressure test of at least five psi without permanent deformation, rupture, or leakage, and shall be approved.

(2) All storage containers used with burners or oil burning heaters shall be installed with rigid metal fasteners for wall, floor, or stand type installations, and shall be protected against mechanical damage.

(3) Portable containers may be filled by a pump mounted on a storage tank, provided that the pump is approved.

§ [illegible] Installation of tanks above ground. [illegible] above ground on the lowest floor.

(1) TANK CAPACITY OF FIVE HUNDRED FIFTY GALLONS OR LESS. Storage tanks having a capacity of five hundred fifty gallons or less may be installed above ground on the lowest floor of a building, provided that such tanks are mounted on adequate noncombustible supports, with the tank anchored thereto. No more than five hundred fifty gallons of total storage capacity may be connected to one burner or may be installed without the protection provided in paragraph two or three of this subdivision.

(2) TANK CAPACITY MORE THAN FIVE HUNDRED FIFTY GALLONS BUT LESS THAN ELEVEN HUNDRED GALLONS. Storage tanks having a capacity of more than five hundred fifty gallons but less than eleven hundred gallons may be installed above ground on the lowest floor of a building, provided that all portions of such tanks above the floor are completely enclosed with noncombustible construction having at least a two hour fire resistance rating. Weep holes one inch in diameter shall be provided at least every three feet along the bottom of the enclosure unless at least fifteen inches of clearance, together with access door, is provided between the tank and the enclosure.

(3) TANK CAPACITY ELEVEN HUNDRED GALLONS OR MORE. Storage tanks having a capacity of eleven hundred gallons or more may be installed above ground on the lowest floor of a building, provided that all portions of such tanks above the floor are completely enclosed with noncombustible construction having at least a three hour resistance rating. At least fifteen inches clearance shall be provided over the tanks and on all sides between the tanks and the enclosure. A noncombustible access door, constructed so as to preserve the integrity of the fire resistive enclosure, shall be installed in the enclosure above the point where the capacity of the enclosure below the door sill would be equal to the capacity of the largest tank installed. When the longest inside dimension of the enclosure exceeds thirty-five feet, access doors shall be installed at intervals not exceeding twelve feet. Columns, pipes, or similar obstructions may project into the required fifteen inches of space within the enclosure, provided that access door or doors are so arranged that all portions of the enclosure are accessible for servicing.

(4) MAXIMUM TANK SIZE. The capacity of individual storage tanks in no case shall exceed twenty thousand gallons.

(b) Inside of building above the lowest floor.

(1) Fuel oil storage tanks having a capacity of two hundred seventy-five gallons or less may be installed inside of buildings above the lowest story when provided with a four inch thick concrete or masonry curb, or with a metal pan of gauge equal to the gauge of the tank, completely surrounding the tank and of sufficient height to contain two times the capacity of the tank. The number of such oil storage tanks shall be limited to one per story.

(2) Storage tanks having a capacity of two hundred seventy-five gallons or less, installed above the lowest floor inside a building shall be filled by means of a transfer pump supplied from a primary storage tank located and installed as otherwise required by this subchapter. A separate transfer pump and piping circuit shall be provided for each storage tank installed above the lowest floor. No intermediate pumping stations shall be provided between the storage tank and the transfer pump. Appropriate devices shall be provided for the automatic and manual starting and stopping of the transfer pumps so as to prevent the overflow of oil from these storage tanks.

(3) A float switch shall be provided with the curb or pan around the storage tank and shall be arranged so as to sound an alarm and stop the transfer pump in case of failure of the tank or the control in the tank. The operation of the float switch shall be tested at least once each week. An alarm bell shall be located in the same room with the tank and a visual and audible alarm shall be located in a maintenance office. The enclosing and sealing of switches and wiring shall conform to the requirements of the electrical code of the city of New York for devices located in an atmosphere of flammable vapors.

*So in original. No par. (2) has been enacted.

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Mayor's Office of Emergency Management
7 World Trade Center
TAA W98-7134

Fuel Oil Tank for Emergency Generator

Background:

Mayor's Office of Emergency management will be leasing the 23rd floor of the building. As per the consultants of the Alteration project, a 6,000 gallons fuel oil tank will be required for the emergency generators, to be located on the 7th floor, to support the operation during emergency.

The existing fuel oil tanks for the building's emergency generators are located below ground under the loading docks on Vesey street. Due to the physical limitations in installing this proposed 6,000 gallon tanks below ground in this area, the consultants for the project have proposed to locate this tank inside the building in a room adjacent to the ground floor lobby on Vesey street which currently houses a battery operated Genie Boom(Televator) used for the maintenance of the lobby lighting.

Inside the room, the tank will be supported on an elevated concrete platform on steel framing occupying the entire room. This elevated platform will be accessible from the space below through an access hatch. The concrete platform and the enclosure above will be 4-hour fire resistance rated. The space will be vented to the outdoors by mechanical means.

Silverstein Properties, the manager of the building, intend to continue to house the Televator in this room under the raised platform. They maintain that there is no other room in the building for them to store the Televator. Accordingly, the submitted drawings indicate the space below the platform as storage room, occupancy class B2(low hazard). The space below the platform will be provided with sprinkler protection and mechanical ventilation.

Codes:

829

New York city Building Code section 27-289(a)(3) as well as the New York City Fire Department Rule 21-17(e)(1)(iii) have identical provision for fuel oil tanks located inside of buildings:

> *Storage tanks having a capacity of 1,100 gallons or more may be installed above ground on the lowest floor of a building, provided that all portions of such tanks above the floor are completely enclosed with non combustible construction having at least a 3-hour resistance rating.*

If the flash point of the fuel oil is under 200 degrees Fahrenheit, the space would be classified as Occupancy group A, high hazard , as per building code section 27-243(a) and would require 4-hour fire resistance rating, instead of 3, as per Code section27-403. Furthermore, sprinklers and ventilation system would be required, as per code sections 27- 404 and 405.

Discussions:

The codes permit fuel tanks of 275 gallons or less capacity inside buildings above the lowest floor. However, due to the fire hazards associated with larger tanks, these are permitted only on the lowest floor of a building, with varying degree of fire protection depending on the size of tanks, for direct and quick access of the fire fighters.

The raised concrete platform, although occupying the entire room, is in essence a structure to support the tank and the installation can be considered to be on the lowest floor of the building provided the fire rating of the enclosure is extended down to the main floor. The storage space under the platform, however, raises the following safety issues and concerns.

- Although the equipment to be stored is not combustible, it is battery operated and has rubber tires on the wheels. There is a possibility of accumulation of explosive gases in the space during battery charging operation.
- Creating a storage space under the tank support is not in accordance with the letter of the code.

Due to the limited number of batteries the quantity of gas that may be discharged would be very small. With a properly designed ventilation system, the possibility of gas accumulation can be eliminated.

Although the storage space may not be strictly in accordance with the letter of the code, by providing a properly fire rated access hatch between the storage space and the platform above, the tank will be completely separated by fire rated construction from the space below.

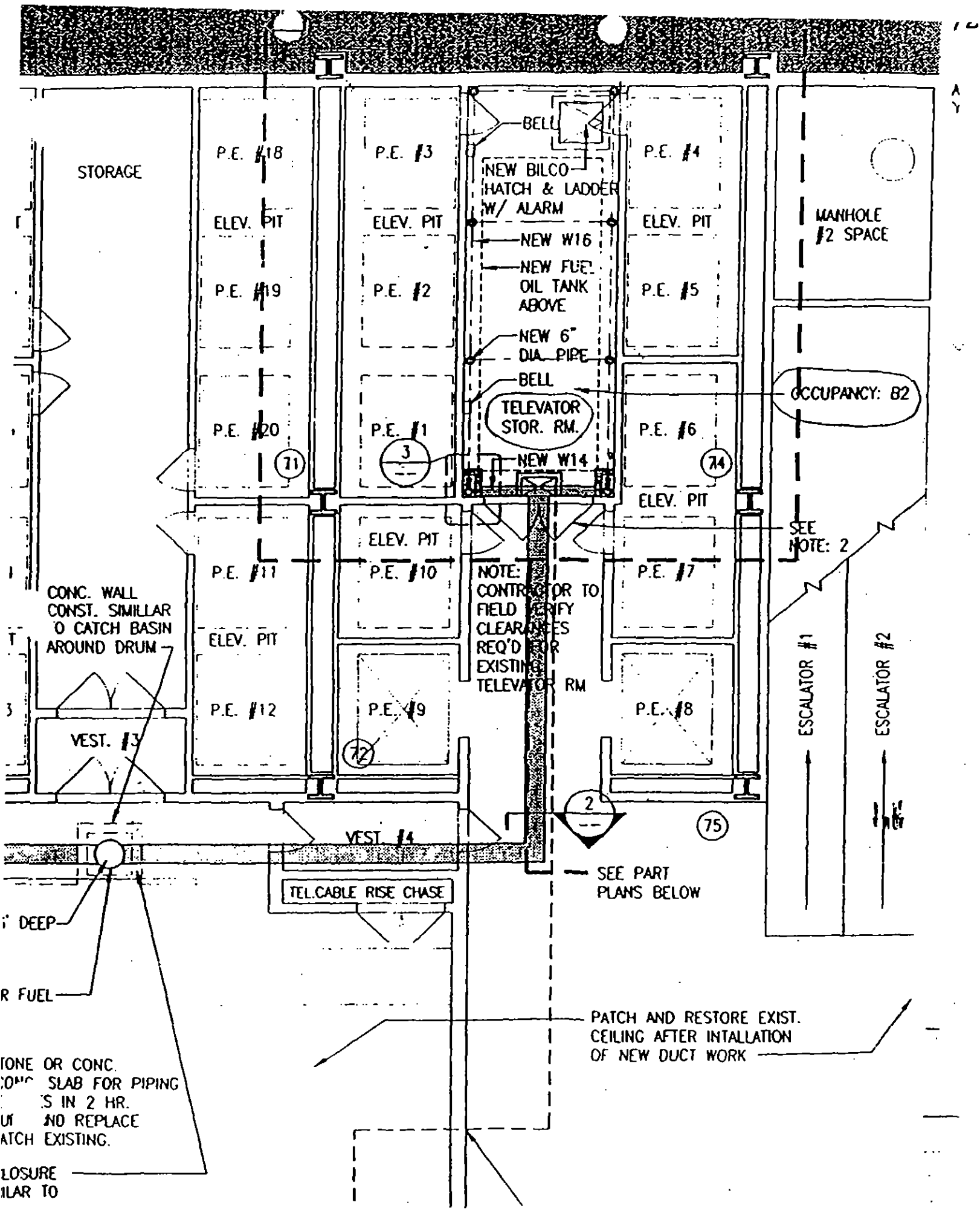
Conclusion:

Fuel tank installations are primarily governed by Fire Department Rules. It is recommended that Risk Management obtain fire Department concurrence on this installation. With the Fire Department's concurrence, the installation can be accepted provided the following safety features are incorporated in the design:

- Adequate Ventilation system to prevent accumulation of explosive gases from battery charging
- Explosion-proof wiring and electrical fixtures in the space

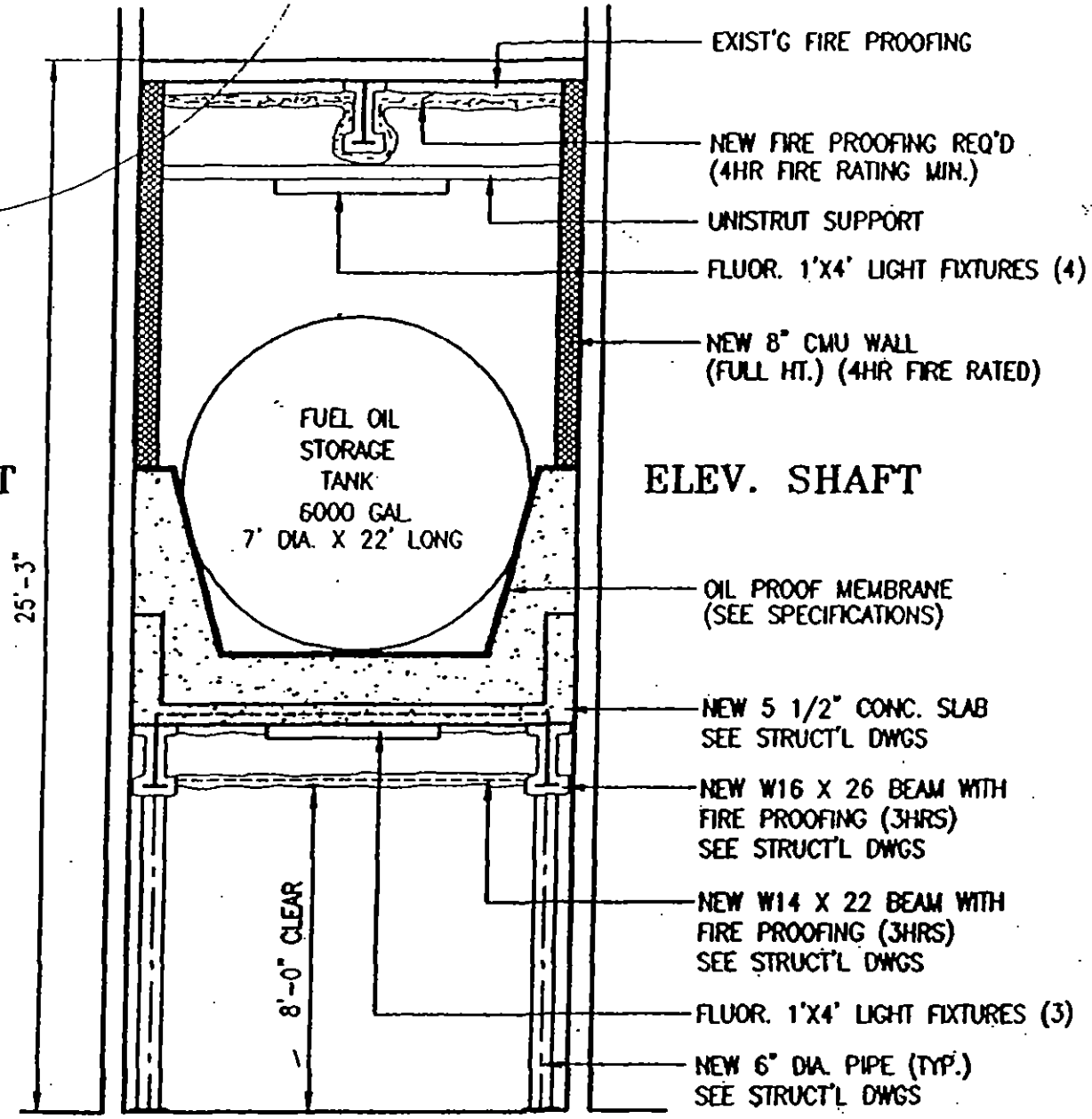
- Properly rated access hatch between the concrete platform and the space below.

Saroj Bhol
Quality Assurance
4/22/98


STORAGE
P.E. #18
P.E. #3
P.E. #4
ELEV. PIT
ELEV. PIT
ELEV. PIT
P.E. #19
P.E. #2
P.E. #5
P.E. #20
P.E. #1
P.E. #6
P.E. #11
P.E. #10
P.E. #7
P.E. #12
P.E. #9
P.E. #8
BELL
NEW BILCO HATCH & LADDER W/ ALARM
NEW W16
NEW FUEL OIL TANK ABOVE
NEW 6" DIA. PIPE
BELL
TELEVATOR STOR. RM.
NEW W14
ELEV. PIT
ELEV. PIT
NOTE: CONTRACTOR TO FIELD VERIFY CLEARANCES REQ'D FOR EXISTING TELEVATOR RM
MANHOLE #2 SPACE
OCCUPANCY: B2
SEE NOTE: 2
ESCALATOR #1
ESCALATOR #2
71
72
74
75
3
2
VEST. #3
VEST. #4
TEL.CABLE RISE CHASE
SEE PART PLANS BELOW
CONC. WALL CONST. SIMILAR TO CATCH BASIN AROUND DRUM
DEEP
R FUEL
PATCH AND RESTORE EXIST. CEILING AFTER INTALLATION OF NEW DUCT WORK
TONE OR CONC.
CONC SLAB FOR PIPING
S IN 2 HR.
ND REPLACE
ATCH EXISTING.
LOSURE
ILAR TO

(27A) (28)

GENERAL NOTE:
CONSTRUCTION OF FUEL TANK AREA SHALL COMPLY W/ PORT AUTHORITY STANDARDS AND COMPLY TO NYC BUILDING CODE TO THE FULLEST EXTENT POSSIBLE.



7 SECTION THROUGH FUEL OIL TANK ROOM

1/4" = 1'-0"

THE PORT AUTHORITY OF NY & NJ **MEMORANDUM**

TO: File
FROM: Gerard M. Cummiskey
DATE: April 27, 1998
SUBJECT: **FDNY REVIEW – WTC7 DIESEL TANK**

COPY: S. Bhol, N. Chanfrau, J. Gertler, E. Petrick, D. Warren

On April 23, 1998 and April 27, 1998, I spoke with the Fire Department - City of New York, Director of Engineering, James Hansen, regarding the proposed installation of a 6,000 gallon diesel fuel tank at WTC7. This tank will supply fuel for the emergency power generators supporting the City's Office of Emergency Management Complex.

Mr. Hansen's only comment was to recommend the installation of an appropriate fire suppression system in the area of the fuel tank.

G. Cummiskey

Gerard M. Cummiskey
Manager, Risk Control Division
Risk Management

cc. D. Lucey
Job Folder

TOTAL P.02

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Lou Menno, General Manager, World Trade Tenant Services
From: C. John Lin, P.E.
Date: April 28, 1998
Subject: WTC - ALTERATION APPLICATION W-987134 - 7 WTC - MAYOR'S EMERGENCY MANAGEMENT OFFICE

Reference: Review Request dated 4/14/98

Copy To: A. Fadavi, G. Gaeta, J. Gertler, T. O'Connor, J. Napolitano, Job Folder, Chrono Folder

A review of the material submitted with the referenced request has been made.

It is recommended that approval to proceed with construction be withheld pending submission of the items listed below being revised in accordance with the fifty-one (51) requirements listed on the attached rider.

Drawings: Specifications:

REMARKS: 1) PA Risk Management has reviewed with the NYC Fire Department the proposed 6,000 gallon fuel tank installation within the building. The installation is acceptable in concept. However, approval to proceed with construction could not be given due to the absence of structural calculations and fire protection requirements noted in the comments with an asterisk (*) in the attached rider. We suggest a meeting be scheduled with the consultant to resolve these comments.

2) This memorandum was transmitted to the Facility via OA on April 28, 1998.

for Ron Prasopa
C. John Lin, P.E.
Acting Manager
Quality Assurance Division

I.D.: W98-7134-001
HV/al
att.

Reviewers:
H. Vadi, Coordination and Architectural; A. Rohssler, Electrical; O.M. Clemente, Mechanical; H. MacDonald, Plumbing; V. Tsin, Structural; D. Luey, Fire Protection.

RIDER

ALTERATION APPLICATION V-987134

GENERAL

1. Drawing T-1. Provide a note regarding Controlled Inspection. All items subject to controlled inspection shall be listed on the plans in compliance with NYC Building Code Sections 27-132, 27-136 and PA Tenant Construction Review Manual (TCRM) 1997, Section 14.III.b.

ARCHITECTURAL

2. Drawing A-EG-23:

   a) Provide a note that all work shall conform to the latest edition of NYC Building Code and requirements of the PANYNJ. See PA Tenant Construction Review Manual, 1997.

   b) Please add a note regarding construction classification of the building, as per NYC Building Code Section 27-269.

   Please add the following notes after verification:

   c) The proposed design complies with the requirement of the Federal "American with Disabilities Act (ADA), PL-101-336."

   d) All wood and wood products shall be fire retardant and labeled accordingly, as per NYC Building code Section 27-328.

* 3. Drawing A-1-1:

   a) Provide an approved assembly numbers for the four hour rating for concrete floor, 8" concrete block wall and fireproofing over deck and beams. See NYC Building code Section 27-322.

   b) Provide a rated hatch at the elevated slab to maintain the integrity of the rated construction, as per NYC Building Code Section 27-342.

   c) Revise the note at Part Plan - Mezzanine "New full height CHU (4HRS)" instead of 3 HRS as stated on the Drawing.

   d) Extend the 4 hour rated wall above the platform, down to the main floor and modify all doors to match the fire rating of the enclosure. Also, all structural members, including columns shall be 4-hour fire rated.

   e) Penetration through rated construction. Please provide on the Drawing a detail or note that clearly defines the method by which the fire-rating of construction is maintained when

penetrated by ducts, pipes, conducts, etc., as per Code Section 27-343. Please note that responsibility for design or code compliance shall not be delegated to the contractor, as per PA TCRM, Section 3(III).

4. Drawing A-7-1. Please provide occupancy group of the space left of column 19 and right of column 24 and indicate proper fire resistance rating for walls separating these spaces from the Pump and Generator Room, as per NYC Building Code Section 27-240 and Table 5-1 or 5-2.

5. Drawings A-23-1 and A-23-5:

   a) Please separate the Computer Equipment Room, from the adjacent area with a one-hour fire resistant partition. See NFPA 75, Chapter 3.

   b) All door openings in rated partitions shall be protected with a rated door assembly to maintain the integrity of the fire partition.

   c) Finish Schedule. Submit specification and MEA or BS&A resolution of approval for the following items, as per NYC Building Code Sections 27-131 and 27-348. Please note that manufacture's data is not a substitute for a certificate of acceptability:

      i) All Ceiling Tiles
      ii) Wall Veneer
      iii) Faux wood panel
      iv) Fabric wall covering and fabric wrapped panels
      v) Plastic laminates
      vi) Solid Surfacing

   d) Submit test reports for the carpets from an independent registered testing laboratories in compliance with the NYC Building Code Section 27-351(d)(2).

6. Drawing A-23-2. Please revise the exit sign arrow near Door 37 in Corridor "C", in the direction of exit. See NYCBC Section 27-383.

7. Drawing D-0:

   a) Card Reader. Submit BS&A or MEA resolution of approval for all card reader device and locking device to be installed in all exit doors. See NYCBC Section 27-131.

   b) Partition Types. Please provide an approved assembly number for all rated partitions. See NYCBC Section 27-322.

8. Drawing D-1:

   a) Please provide clear maneuvering space inside Toilet Rooms 23-31, 23-32, and 23-48 so a handicapped person can close the door with minimum effort. See ADA Section 4.2.3.

   b) Revise minimum distance of 15" from wall to center line of lavatory. Comply with ADA Section 4.19.

   c) Side Grab bar at vater closet. Provide 42" long grab bar at side wall, as per ADA Section 4.17.6 and Figure 29.

   d) Please provide proper elevations of all fixtures and accessory used by handicapped persons, to comply with ADA Code.

   e) The curb at the handicapped shover stall shall comply with ADA Code Section 4.21.7.

ARCHITECTURAL AND ELECTRICAL

9. Vikonics Drawings 038Z001 and 038L003. Doors 40A, 40B, 21C, 05, and 13 have been identified as having magnetic locks. In coordination with the Architectural design, investigate all electrically operated locks on doors that are in the path of egress, and show that those doors are readily openable, without delay, at all times from the side from which egress is to be made, and shall not require a key, card, or code to operate from that side.

   a) An egress button, such as shown for Door Type D, for example, does not meet the above egress requirement.

   b) The release means for the magnetic locks shall interrupt the magnetic lock circuit directly, without reliance upon a computer or other unapproved control system. An interposing relay that has been approved for the purpose may be used in the lock circuit, and may be required if the switch contacts are not rated to interrupt the magnetic lock circuit current.

   c) Also submit the MEA or BS&A approval resolutions covering the components of the locked door system.

   See NYC Building Code Section 27-371(j)(1)a.

10. Drawing E1.23. Electrically operated locks on elevator vestibule doors. Add a break-glass station in the elevator lobby, adjacent to the doors, so as to unlock the elevator lobby vestibule door, thus providing access to an exit stair. The electrically operated lock shall be of the fail-safe type. If, in addition, the tenant has an individual fire alarm panel, then include circuiting that will unlock the elevator vestibule door upon activation of the tenant alarm panel. See NYC Building Code Reference Standard RS 18-1, Rule 110.6.b.

W-987134 (cont'd)

ELECTRICAL

11. Drawing A-1-1, Section 7. The space under the fuel oil storage tank may be used for charging storage batteries on an electric vehicle. Show explosion-proof wiring methods, to guard against the accumulation of an explosive mixture of battery gases. The storage batteries can produce explosive gases, even if sealed recombination-type batteries are used. See NYC Electrical Code Section 27-3158, the 11/18/92 minutes of the NYC Electrical Code Revision and Interpretation Committee, NEC Section 480-8(a), and PA Tenant Construction Review Manual Section 10-V.D.7.

12. Grounding Conductor Sizes, Specification pages 16400-29 and 16400-33. Add that the minimum size of grounding conductors shall be as listed in NYC Electrical Code Section 27-3110, Table 1.

13. Drawing TC-101; Scope of work, Telecommunications Cable Installation, Specification Section 16700B, Page 4. Also, revise the note stating the communications cable is installed elsewhere than in an electric closet. See NYC Electrical Code Bulletin 119-1970, Section 119.1.b.

14. Drawing E1.23. Add strobe alarms to the toilet rooms. See NYC Building Code Section 27-292.15, Reference Standard RS 17-3C, and ADA Section 4.28.

15. Drawing E1.48. Storage battery installation. Investigate whether there will be sufficient diffusion and ventilation of the battery gases so as to prevent the accumulation of an explosive mixture under both normal and other than normal conditions. The storage batteries can provide explosive gases, even if sealed recombination-type batteries are used. See NYC Electrical Code Section 27-3158, the 11/18/92 minutes of the NYC Electrical Code Revision and Interpretation Committee, NEC Section 480-8(a), and PA Tenant Construction Review Manual Section 10-V.D.7.

16. Drawing E3.01. Show system grounding for the UPS and transformer secondary windings, including grounding electrodes and grounding electrode conductors. See NYC Electrical Code Section 27-3105-b.3.

17. Drawing E3.01. Increase these grounding conductor sizes which are not at least as large as required in NYC Electrical Code Section 27-3110, Table 1. For example, the minimum size equipment grounding conductor to run with a size 2/0 feeder is size 4, not size 6.

MECHANICAL

18. Drawing A-1-1; Detail 7, Section through Fuel Oil Tank Room. As required by the NYC Building Code Section 27-829(a)(3), the clearance between the rated non-combustible enclosure and all the sides of the storage tank shall be at least 15 inches. In addition, clarify whether the 2 foot high concrete curb (Detail 6, Part Plan Mezzanine) together with the "oil proof membrane" portion of the enclosure will hold at least equal the capacity of the 6000 gallons storage tank.

V-987134 (cont'd)

19. Drawing A-1-1; Detail 3, Shaft Detail. Code Section 27-829(f)(1) requires that shaft for the fuel oil pipe shall be constructed with four-inch concrete or masonry.

20. Drawing M1.01. The horizontal portion of the fuel oil piping shall be enclosed in a sleeve of other piping of at least number 10 manufacturer's standard gauge steel, two sizes larger than the fuel pipe therein. Clarify whether the conduits indicated on the Fuel Piping Schematic are of 10-gauge steel as required by the Code, Section 27-829(f)(2).

21. Drawing M1.01. Clarify how the space at the Tank Storage Room and the space below it are ventilated. The note is not explicit that the requirements of the Code, Section 27-405 is achieved, i.e., ventilation is continuous, exhaust shall be to the outdoors, and at least 2 air changes per hour is exhausted for each room.

22. Drawings M1.01 and M1.07. Clarify whether the existing risers being utilized for the new fuel oil lines is schedule 40 seamless steel and enclosed exclusively, containing no other pipes or ducts, in a shaft constructed of 4-inch concrete or masonry. The shaft shall be provided with a drainpipe at its base that leads to an open sight drain or open sump. See Code Section 27-829(f).

23. Drawing M1.07. Discharge plenum and/or opening for the internal combustion engines exhaust creates a fire hazard condition and health hazard with the location of the fuel oil vent and also creates conflict with the fresh air intake opening since they are only 2 feet apart.

24. Drawing M1.07, Emergency Generator Schematic Diagram Diesel Fire, Indoor Installation. Specify the capacity of the "Tank/Rupture Basin," that it equals at least twice the capacity (275 gallons) of the fuel oil day tank. Clarify also where the "Basin Detail" is shown, as mentioned on the drawing.

25. Drawing M1.23. Provide index for ventilation for each room or space as required by the Code Section 27-182(a)(3).

26. Drawing M1.23. Show all the fire dampers, smoke dampers or combination fire/smoke dampers, existing or new, in the ducts that penetrate the new fire rated construction as required by the Code, RS 13-1, Section 3-3.7.2 and the NYC Department of Buildings, Technical Policy and Procedure Notice #6/96. See Drawing A-23-1 for location of all fire rated walls.

27. Specification Manual, Section 15120, paragraph 1.1A5. Clarify whether the acoustical treatment of the exhaust plenum for the emergency generators poses hazardous conditions due to the perforations of the inner shell and the ability of the material used for lining to withstand high temperature generated by the internal combination engine exhaust. Submit copy of the BS&A or MEA resolution of approval for the material specified in Section 15140, Paragraph 1.1A for the acoustical lining.

28. Specification Manual, Section 15190, Paragraphs 1.3F and 1.3H. PVC material shall not be used above ground and inside the building. In addition, drift eliminators shall be noncombustible since conditions of Code Sections 27-337(i)(3) and (4) are not met.

29. Specification Manual, Section 15190, Paragraph 1.4E2. Clarify whether the the 3-inch calcium silicate insulation is adequate to limit the surface temperature of the engine exhaust pipe and muffler to not more than 200°F as required by Code Section 27-869(a)(4).

STRUCTURAL

30. The locations and loads of each piece of machinery and equipment having a weight in excess of one thousand pounds shall be noted on the drawings. Code Section 27-157(b)(3).

31. Where the existing beams are used to support the new loads, indicate on the drawings their sizes, stud arrangement, and ASTM designation.

*32. Drawing A-1-1, First Floor Construction Plan:

a) Trench Note on the Plan and Detail 2. Verify with calculations that the existing construction will not be overstressed due to the new trench cut in the existing slab.

b) Submit details of concrete wall and enclosure for 50 gallons drum.

c) Details 6 and 7, New Mezzanine. Submit structural design and details verified with calculations of the new Mezzanine construction. Also, investigate the adequacy of the ground floor slab to support the platform columns.

d) Detail 6. Indicate the height of the new masonry wall, and show how it is braced.

33. Drawing A-7-1:

a) Demolition Notes. Please add the following note: All demolition work to be in compliance with Article 6, Subchapter 19 of the NYC Code "Demolition Operations".

b) Details 4 and 6. Indicate how new curbs are anchored to the slab below.

*34. Drawing A-23-1. Submit calculations to show that the existing construction is not overstressed under the added loads in the new Storage Room 23-24, Libraries 23-28 and 23-18, File Room 23-20, LAN Room 23-23, and Vault Room 23-16.

35. Drawings A-23-2 and A-1-1, Details 4 and 5. Submit design and details of all types of suspended ceilings where the sizes, spacing, and connection details for all members of the ceiling framing are indicated, including connections between hangers and construction above. See Code RS 5-16 and Tenant Construction Review Manual (TCRM) Attachment S2.

36. Draving D-0, Detail 10. Please indicate on the plans where partition Type 10 is used.

37. Draving D-3, A/V Enclosures:

    a) Indicate loads on the existing floor from the new construction.

    b) Submit details of the screen bracing.

    c) Indicate how the new steel posts are anchored to the existing slab.

38. Draving S-3:

    a) Indicate sizes of the new framing between column lines 33 and 35.

    b) Note 3. Submit details of the new 1/2" reinforcing plate.

39. Draving S-4, Part Plan at Roof:

    a) Indicate sizes of the roof framing.

    b) Clarify how the two posts, located between corner posts, are braced in North-South direction.

40. Draving S-5:

    a) Section 2:

        i) Indicate how the new W6 are connected to the existing framing.

        ii) Submit braces connection details or indicate forces in them for connection design purposes.

        iii) Section 3. Submit column's base plate and anchor bolts detail, verified with calculations.

    b) Typical detail for Antenna support. Indicate location of this support on the plan.

*41. Structural Calculations:

a) It is noted that calculations were submitted only for the new work on the 7th floor and the 23rd floor between column lines 08 and 11. Please submit calculations for the rest of the structural work shown on Drawings S-1, and S-3 through S-5.

b) Submit calculations to verify that the existing columns are not overstressed due to the added loads.

c) The existing floor beams were checked for vertical loads only. Please clarify if they are part of the lateral load resisting system and include the effects of lateral loading in the design, if necessary.

d) For composite beams verify that the existing stud arrangement are adequate for the new loading conditions.

e) For the existing beams used to support the new loads, investigate if the existing connections are adequate for the revised loading conditions.

f) 7th Floor Calculations. Include in the design weight of Fuel Oil Day Tank, shown on Section 6/A-7.1.

g) 23rd Floor Calculations. Include in the design weights of AC units shown in the Schedule on Drawing M4.01.

FIRE PROTECTION

42. Specification Section 15305:

a) Subsection 1.1C.7: Revise to read "Prepare and submit to the Port Authority, as set... acceptable to the Port Authority."

b) Subsection 1.6A.3: Revise to read "...as required by the NYC Building Code, and by PA Tenant Construction Review Manual, Attachment S3."

43. Specification Section 15310, Subsection 2.1.A: Revise to read "...in accordance with NYC Building Code Reference Standards RS 17-1 and 17-2."

44. Specification Section 15330:

a) Subsection 1.1D: Revise third sentence to read "...and Ordinary Hazard areas in NYC Building Code Reference Standard RS 17-2." Delete "Fire Department" in the fourth sentence.

b) Subsection 2.4.D: Revise first sentence to read "...in accordance with NYC Building Code Reference Standard RS 17-2 (1989 Edition NFPA 13) Section 3-11.7."

45. Sprinkler Specification 15340, Subsection 1.4A. Drawing FP4.23, Pre-action sprinkler systems single Interlock type with Electrical Release 1.B. requires 10 years of experience. Coordinate and revise accordingly.

*46. Drawing FP1.01. The drawing shows sprinkler protection underneath the new tank floor. Please provide sprinklers for the space above the new tank floor also, to protect the new oil tank.

47. Drawing FP2.07. Provide full sprinkler protection in the proposed OEM space, including the new Generator and Tank Room.

48. Drawing FP3.23:

a) Sprinkler layout exceeds 120 sf per head for ordinary hazard in Sprinkler Specification 15305, Subsection 1.8C.1, and 150 sf per head for light hazard in Sprinkler Specification 15305, Subsection 1.8C.2. Coordinate and revise accordingly.

b) Submit signed and sealed hydraulic sprinkler calculation.

49. Drawing FP4.23, Pre-action Sprinkler System Description and Sequence of Operations (Items 2.B and 3), Pre-action System Assembly Detail, and Pre-action Fire Sprinkler System Electrical Control One-Line Rider Diagram. The NYC Fire Department prohibits cross zoning of detectors in preaction systems except where a halon system is also protecting an area identical to that protected by the sprinklers. Revise accordingly.

50. Drawing FP5.23:

a) New York City Sprinkler Note 9: Revise to read "...as per Section 3-11.7 of RS 17-2..."

b) New York City Sprinkler Note 15: Revise to read "...as per Table 3-11.6.3(a)."

c) New York City Sprinkler Note 19: Revise to read "...as per Section 3-9.4 of RS 17-2."

d) New York City Sprinkler Note 20: Revise to read "...as per Section 3-6 of RS 17-2."

e) New York City Sprinkler Note 22: Revise to read "...as per Section 3-8.3 of RS 17-2."

f) New York City Sprinkler Note 24: Revise to read "...as per Section 3-9.1.2 of RS 17-2."

g) New York City Sprinkler Note 26: Revise to read "...as per Section 3-3.2 of RS 17-2."

h) New York City Sprinkler Note 27: Revise to read "...as per Section 3-11 of RS 17-2."

i) New York City Sprinkler Note 28: Revise to read "...as per Section 3-11.6 of RS 17-2."

j) Sprinkler Equipment Schedule. Add orifice size and temperature rating of specified heads.

51. New York City Building Code Section 27-979(b) requires smoke detection in mechanical rooms over 75 sf in gross floor area in all buildings in all occupancy groups. Provide accordingly.

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

M E M O R A N D U M

To: Mr. Lou Menno, General Manager, World Trade Tenant Services
From: C. John Lin, P.E.
Date: May 19, 1998
Subject: WTC - ALTERATION APPLICATION W-987134 - 7 WTC - MAYOR'S EMERGENCY MANAGEMENT OFFICE

Reference: Review Request dated 5/13/98

Copy To: A. Fadavi, G. Gaeta, T. O'Connor, J. Napolitano, Job Folder, Chrono Folder

A review of the material submitted with the referenced request has been made.

The previous recommendation that approval to proceed with construction be withheld, has been changed to recommending that approval to proceed with construction be given subject to the submission of the items listed below being revised in accordance with the twenty-two (22) requirements listed on the attached rider.

Drawings: Specifications:

REMARKS: 1) Please inform the tenant in writing that Swanke Hayden Connell Architects, in their 5/13/98 response to previous Electrical Comment 11, referring to Drawing A-1-1, Section 7, advises not to use the space under the fuel storage tank for charging storage batteries.

2) See the attachment for a revised list of drawings recommended for approval.

3) This memorandum was transmitted to the Facility via OA on May 19, 1998.

for Ron Pisapia
C. John Lin, P.E.
Acting Manager
Quality Assurance Division

I.D.: W98-7134-002
HV/al
att.

Reviewers:
H. Vadi, Architectural and Coordinator; A. Rohssler, Electrical; O.M. Clemente, Mechanical; V. Tsin, Structural; H. MacDonald, Fire Protection.

RIDER

ALTERATION APPLICATION W-987134

ARCHITECTURAL

1. Drawings A-1-1 and D-10. Please verify with an assembly number (for 4-hour rated) for the 6" thick concrete block curb at the rated hatch on the two open sides.

2. Drawings A-23-1 and A-23-5:

   a) Indicate 3/4 hour rating for Doors 55 and 56 in the one-hour rated wall.

   b) Doors 3, 9, 11A, 11B, 14, 35, 38, 42A, 42C, 44, 45, etc., occur in two-hour rated walls. These doors are not rated and will not maintain the integrity of the fire partitions. Please provide rated doors as required.

3. Drawing D-1. The response to Comment 8 of the previous Rider has been noted. Please provide clear maneuvering space of 5' radius, not overlapping the space from the door swing opening. See ADA Section 4.2.3. (Modified repeat comment)

4. Drawing D-0, Card Reader. Submit BS&A or MEA resolution of approval for all card reader devices and locking devices to be installed in all exit doors. See NYCBC Section 27-131. (Repeat comment)

5. Drawings A-1-1 and D-4, Elevation 'C' and 'F'. Please indicate the Glass marking (with height A.F.F) on the glass panel in the elevation, in compliance with BS&A Calendar #501-68-SR.

ARCHITECTURAL AND ELECTRICAL

6. Electrically and electromagnetically locked doors in the path of egress, such as on Vikonics Drawings 038Z001 and 038L003, Doors 40A, 40B, 21C, 05 and 13. The 5/13/98 Swanke Hayden Connell response to the previous Rider, Comment 9 is noted:

   a) The cited exception to Code Section 27-371(j)(1)a, for secure areas, applies only if specifically approved on a reconsideration basis. Submit a request for reconsideration for those areas for which the exception will apply.

   b) The release means for the magnetic locks shall be directly on the door, and shall interrupt the magnetic lock circuit directly, without reliance upon a computer or other unapproved control system. An interposing relay that has been approved for the purpose may be used in the lock circuit, and may be required if the switch contacts are not rated to interrupt the magnetic lock circuit current. The response, that there is a tie-in to the fire alarm system, does not address the problem.

W-987134 (cont'd)

c) The response notes that the access control system does not have a BS&A or MEA approval. Therefore, this system cannot be approved. Revise the design accordingly.

d) Submit the actual BS&A approval resolutions that are cited in the response.

(Modified repeat comment)

ELECTRICAL

7. Grounding Conductor Sizes, Specification Pages 16400-29 and 16400-33. Add that the minimum size of grounding conductors shall be as listed in NYC Electrical Code Section 27-3110, Table 1. The response to previous Rider, Comment 12 is noted. However, the revised specifications have not be submitted. (Repeat comment)

8. Drawing TC-101; Scope of Work, Telecommunications Cable Installation, Specification Section 16700B, page 4. Revise so that the communications cable is installed elsewhere than in an electric closet. See NYC Electrical Code Bulletin 119-1970, Section 119.1-b. The response to previous Rider, Comment 13 is noted. However, the revised drawings and specifications continue to show the communications installation in an electric closet. (Repeat comment)

9. Drawings E3.01 and E4.03, regarding system grounding for the UPS and transformer secondary windings. The response to the previous Rider, Comment 16 is noted. However, the details on Drawing E4.03, requiring sizing "per NYC Electrical Code," are not sufficient. Submit the actual conductor sizes. See NYC Electrical Code Sections 27-3105-b.3 and 27-3110, Table 1. (Modified repeat comment)

MECHANICAL

10. Drawing M1.01, Fuel Piping Schematic. Revise the note to require that the conduit enclosing the fuel oil piping (in the floor trench) shall be 10 gauge steel, two sizes larger than the fuel pipe in it, as required by Code Section 27-829(f)92). (Repeat cement)

11. Drawings M1.01 and M1.07. Clarify whether the existing risers being utilized for the new fuel oil lines is schedule 40 seamless steel and enclosed exclusively, containing no other pipes or ducts, in a shaft constructed of 4-inch concrete or masonry. The shaft shall be provided with a drainpipe at its base that leads to an open sight drain or open sump. See Code Section 27-829(f). Submit the appropriate documentation. (Repeat comment)

W-987134 (cont'd)

12. Drawing M1.07. Discharge plenum and/or opening for the internal combustion engines exhaust creates a fire hazard conditions in conjunction with the location of the fuel oil vent. Relocate the fuel oil vent outside of the engine exhaust plenum. (Repeat comment)

13. Drawing M1.23. Provide index for ventilation for each room or space as required by the Code, Section 27-182(a)(3). Expand the ventilation schedule to include each occupiable room or space as required by the Code. (Repeat comment)

14. Drawing M1.23. Show all the fire dampers, smoke dampers or combination fire/smoke dampers, existing or new, in the ducts that penetrate the new fire rated construction as required by the Code, RS 13-1, Section 3-3.7.2 and the NYC Department of Buildings, Technical Policy and Procedure Notice #6/96. See Drawing A-23-1 for location of all fire rated walls. (Repeat comment)

STRUCTURAL

Comments 30, 32-(a), and 34 of the previous Rider are repeated since no information requested in the original comment was provided:

15. The locations and loads of each piece of machinery and equipment having a weight in excess of one thousand pounds shall be noted on the drawings. Code Section 27-157(b)(3). (Repeat comment)

16. Drawing A-1.1, Trench Note on the Plan and Detail 2. Verify with calculations that the existing construction will not be overstressed due to the new trench cut in the existing slab. (Repeat comment)

17. Drawing A-23-1. Submit calculations to show that the existing construction is not overstressed under the added loads in the new Storage Room 23-24, Libraries 23-28 and 23-18, File Room 23-20, and Vault Room 23-16. (Repeat comment)

18. Please submit the following:

    a) 23rd Floor. Verify that the existing construction is not overstressed under the added weight of operable partitions when they are extended and are retracted in Conference Rooms 23-44 through 23-46.

    b) Submit design of the new Radio Room construction on the existing roof. Also, please verify that the existing roof can support Radio Room loads and snow drifting created by it.

    c) Verify with calculations the design of the new Antenna Support to the existing roof.

W-987134 (cont'd)

19. Structural Calculations dated May, 1998:

    a) Fuel Tank Framing. Add weight of masonry walls supported on the Mezzanine.

    b) Calculations of the 23rd Floor Construction:

        i) The existing slab design of LAN Room is noted. Submit also the design of the existing framing at this location.

        ii) Submit calculations to verify the adequacy of the floor in the Water Storage Room for 10 feet high stack of bottles, as per note on Drawing S-3.

FIRE PROTECTION

20. Drawing FP4.23, Pre-action Sprinkler System Description and Sequence of Operations (Items 2.B and 3), Pre-action System Assembly Detail, and Pre-action Fire Sprinkler Electrical Control One-Line Rider Diagram. The NYC Fire Department prohibits cross zoning of detectors in preaction systems except where a halon system is also protecting an area identical to that protected by the sprinkler. Revise accordingly.

    Also, revise Note 2(b) under the Pre-action Sprinkler System Description and Sequence of Operation to eliminate cross-zoning of detectors as required by NYC Fire Department.

21. Drawing FP1-01. Sprinkler piping and heads on the first floor under Fuel Tank Storage Room are noted to be installed tight to the wall. Distance form walls to sprinkler shall conform to NFPA #13 4-2.1.5.1 and 4-2.1.5.2.

PLUMBING

22. Drawing P3.23. Provide a drain receptor for the Pre-action valve and assembly as noted on the Pre-action system detail shown on Drawing FP4.23.

051998

PANYNJ
drawer 36
#7
Box 2/6